ICCONS®

C1 Seismic Approved Fasteners (Carbon steel & stainless steel)

C2 Seismic Approved Fasteners (Carbon steel only)

Made in Germany

TDS | 1018.17

TOGE TSM
CONCRETE SCREW-BOLTS® AND THREADED ROD HANGER

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TOGE TSM

Concrete Screw range and Threaded Rod Hanger

ZINC

The Toge TSM concrete screw range features quick and safe installation, high load capacities in both cracked and non-cracked concrete with undercut load transmission. The TSM can be easily removed and does not leave residue or metal components in the drilled hole. Loads can be achieved immediately upon installation.

316 SS (A4) STAINLESS STEEL

The Stainless Steel 316 (A4) high corrosion resistant Toge TSM SS LT Concrete Screws are one-piece self-tapping anchors for concrete and masonry applications providing high load performance in cracked and non-cracked concrete base materials. Clean, low profile appearance gives a aesthetic finish to the project.

The TSM SS LT is a low torque concrete screw for easy installation in all types of concrete base materials.

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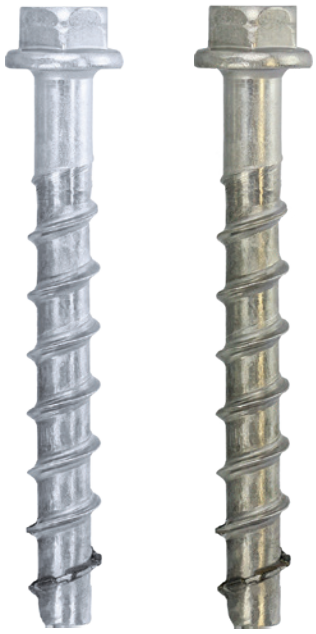

TOGE TSM HIGH PERFORMANCE SCREW-BOLTS®

Hex Head

TOGE TSM HEX HEAD ZINC CLEAR Part No.	TOGE TSM HEX HEAD STAINLESS STEEL Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Min. Anchor Embedment (mm)	Max. Fixture Thickness (mm)	Clearance Hole in Fixture (mm)	Head/Socket Size (mm)	Max. Impact Tool Torque Tmax (Nm)	ETA Option	SEISMIC Assessment	qty.
TSM06043		6x43mm	6	45	40	3	8	13	160	Option 1 & RNSS	C1	100
TSM06050		6x50mm				10						100
	TSM06050SS-LT	6x50mm		50	45	5				Option 1		100
TSM06060		6x60mm		45	40	20				Option 1 & RNSS		100
	TSM06060SS-LT	6x60mm		50	45	15				Option 1		100
TSM06080		6x80mm		45	40	40				Option 1 & RNSS		100
TSM08050		8x50mm	8	55	45	5	12	13	300	Option 1	n/a	50
TSM08060		8x60mm				15						50
TSM08070		8x70mm		75	65	5					C1 & C2	50
	TSM08070SS-LT	8x70mm									C1	50
TSM08080		8x80mm				15					C1 & C2	50
	TSM08080SS-LT	8x80mm									C1	50
TSM08100		8x100mm				35					C1 & C2	50
TSM10060		10x60mm	10	65	55	5	14	15	400	Option 1	C1	50
TSM10080		10x80mm				25						50
TSM10090		10x90mm		95	85	5					C1 & C2	50
	TSM10090SS-LT	10x90mm		65	55	35			450		C1	50
TSM10100		10x100mm		95	85	15			400		C1 & C2	50
	TSM10100SS-LT	10x100mm		65	55	45			450		C1	50
TSM10120		10x120mm		95	85	35			400		C1 & C2	50
	TSM10120SS-LT	10x120mm		65	55	65			450		C1	50
TSM12080		12x80mm	12	75	65	15	16	17	650	Option 1	n/a	25
TSM12110		12x110mm		110	100	10					C1 & C2	25
TSM14080		14x80mm	14	85	75	5	18	21	650	Option 1	n/a	25
TSM14150		14x150mm		125	115	35					C1 & C2	25

C1 Seismic assessment (Carbon steel and stainless steel) only valid for the following embedment depths: TSM06 - 40mm + 55mm / TSM08 - 65mm / TSM10 - 55mm + 85mm / TSM12 - 100mm / TSM14 - 115mm.
C2 Seismic assessment (Carbon steel)only valid for the following embedment depths: TSM08 - 65mm / TSM10 - 85mm / TSM12 - 100mm / TSM14 - 115mm
Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.
For TSM-LT C1 Seismic assessment only valid for the following embedment depths: TSM06-LT - 45mm + 55mm / TSM08-LT - 45mm + 65mm / TSM10-LT - 55mm + 85mm

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TOGE TSM HIGH PERFORMANCE SCREW-BOLTS®

Hex Head

For tempoary fastening of construction site equipment when used with TOGE TSM tube / ring gauges

TOGE TSM HEX HEAD ZINC CLEAR Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Min. Anchor Embedment (mm)	Max. Fixture Thickness (mm)	Clearance Hole in Fixture (mm)	Head/Socket Size (mm)	Max. Impact Tool Torque Tmax (Nm)	qty.
TSM10090	10x90mm	10	85	75	15	14	15	400	50
TSM10100	10x100mm				25				50
TSM10120	10x120mm				45				50
TSM12080	12x80mm	12	85	75	5	16	17	650	25
TSM12110	12x110mm		100	90	20				25
TSM14080	14x80mm	14	85	75	5	18	21	650	25
TSM14150	14x150mm		125	115	35				25

Note: TOGE TSM high performance concrete screw-bolts listed above for temporary fastening ONLY of construction site equipment must be designed and used in strict accordance with the DIBt approval Z-21.8-2115. Use of tube / ring gauges must also be conducted in accordance with approval Z-21.8-2115 and data sheet provided in the tube / ring gauge box.
Excessive torque during installation may damage the anchor. Training, expertise and good judgement is required. Always adhere to anchor installation impact tool torque guidelines.

TOGE TSM TUBE GAUGE 10 / 12 / 14

Tube / Ring Gauge to measure the above selected screw-bolts for temporary fastening of construction site equipment.

ZINC CLEAR Part No.	Description	qty.
TSMSLG-M10	10mm Tube / Ring gauge - for use with selected TOGE TSM 10mm screw-bolts only	50
TSMSLG-M12	12mm Tube / Ring gauge - for use with selected TOGE TSM 12mm screw-bolts only	50
TSMSLG-M14	14mm Tube / Ring gauge - for use with selected TOGE TSM 14mm screw-bolts only	50

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C1 Seismic Approved Fasteners (Carbon steel & stainless steel)

Made in Germany

TOGE TSM HIGH PERFORMANCE SCREW-BOLTS®

Pan Head

TOGE TSM PAN HEAD ZINC CLEAR Part No.	TOGE TSM PAN HEAD STAINLESS STEEL Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Min. Anchor Embedment (mm)	Max. Fixture Thickness (mm)	Clearance Hole in Fixture (mm)	Drive Type (Torx)	Max. Impact Tool Torque Tmax (Nm)	ETA Option	SEISMIC Assessment	qty.
TSMP06050		6x50mm	6	45	40	10	8	T30 / VZ30	160	Option 1 & RNSS	C1	100
	TSMP06050SS-LT	6x50mm		50	45	5				Option 1		100
TSMP06060		6x60mm		45	40	20				Option 1 & RNSS		100
	TSMP06060SS-LT	6x60mm		50	45	15				Option 1		100
TSMP06080		6x80mm		45	40	40				Option 1 & RNSS		100
	TSMP06080SS-LT	6x80mm		50	45	35				Option 1		100
TSMP06100		6x100mm		45	40	60				Option 1 & RNSS		100
	TSMP06100SS-LT	6x100mm		50	45	55				Option 1		100

Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.
For TSMP-LT C1 Seismic assessment only valid for the following embedment depth: TSMP06-LT - 45 mm + 55 mm

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C1 Seismic Approved Fasteners (Carbon steel & stainless steel)

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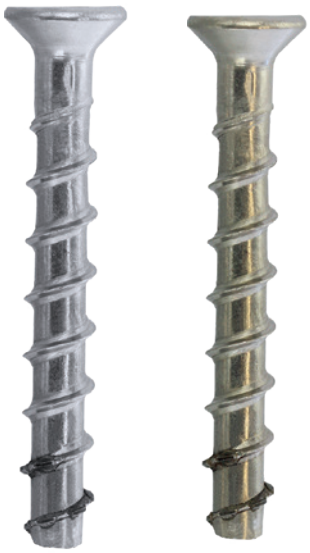

TOGE TSM HIGH PERFORMANCE SCREW-BOLTS®

Countersunk Head

TOGE TSM CSK HEAD ZINC CLEAR Part No.	TOGE TSM CSK HEAD STAINLESS STEEL Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Min. Anchor Embedment (mm)	Max. Fixture Thickness (mm)	Clearance Hole in Fixture (mm)	Drive Type (Torx)	CSK Head Diameter (mm)	CSK Head Angle	Max. Impact Tool Torque Tmax (Nm)	ETA Option	SEISMIC Assessment	qty.
	TSMC06050SS-LT	6x50mm	6	50	45	5	8	T30 / VZ30	13	90°	160	Option 1	C1	100
TSMC06060		6x60mm		45	40	20						Option 1 & RNSS		100
	TSMC06060SS-LT	6x60mm		50	45							Option 1		100
TSMC06080		6x80mm		45	40	40						Option 1 & RNSS		100
	TSMC06085SS-LT	6x85mm		50	45							Option 1		100
TSMC060100		6x100mm		45	40	60						Option 1 & RNSS		100
	TSMC06105SS-LT	6x105mm		50	45							Option 1		100
	TSMC08080SS-LT	8x80mm	8	75	65	15	12	T40 / VZ40	19	90°	300	Option 1	C1	50
	TSMC10090SS-LT	10x90mm	10	65	55	35	14	T50 / VZ50	21	90°	400	Option 1	C1	50

C1 Seismic approval only valid for the following embedment depths: TSM06 - 40mm +55mm
Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.
For TSMP-LT C1 Seismic assessment only calid for hte following embedment depth: TSMP06-LT - 45 mm + 55 mm / TSMC08-LT - 45mm +65mm / TSMC10-LT - 55mm +85mm

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C1 Seismic Approved Fasteners (Carbon steel & stainless steel)

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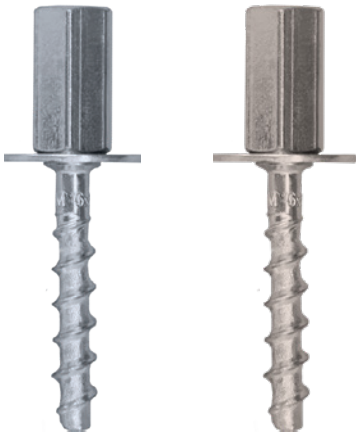

TOGE TSM IM THREADED ROD HANGER

TOGE TSM IM ZINC CLEAR Part No.	TOGE TSM IM STAINLESS STEEL Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Head / Socket Size (mm)	Internal Thread (metric)	Installation Torque T_{inst} (Nm)	*Max Impact Tool Torque T_{max} (Nm)	ETA Option	SEISMIC Assessment	qty.
TSMIM06040ZG (344 106 040)	**TSMIM06040SS** (844 006 040)	6x40mm	6	45	13	M8/M10	10	160*	Option 1 & RNSS	C1	50
TSMIM06055ZG (344 106 055)	**TSMIM06055SS** (844 006 055)	6x55mm	6	60	13	M8/M10	10	160*	Option 1 & RNSS	C1	50

*Max. power output of impact screw gun | Option 1 = ETA Option 1 = AS 5216 Compliant
Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.

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C1 Seismic Approved Fasteners (Carbon steel & stainless steel)

Made in Germany

TOGE TSM B

TOGE TSM B ZINC CLEAR Part No.	Description	Drill Diameter (mm)	Min. Drill Depth (mm)	Head / Socket Size (mm)	Thread (metric)	Installation Torque T_{inst} (Nm)	*Max Impact Tool Torque T_{max} (Nm)	ETA Option	SEISMIC Assessment	qty.
TSMB06040ZG (355 006 040)	6x40mm M8 Ext Thread	6	45	10	M8 x 16 External	10	160*	Option 1 & RNSS	C1	100
TSMB06055ZG (355 006 055)	6 x 50mm M8 Ext Thread		60							100
TMSB06040ZG-M10	6 x 40mm M10 Ext Thread	6	45	13	M10 x 20 External	10	160*	Option 1 & RNSS	C1	100

* Max. power output of impact screw gun | Option 1 = ETA Option 1 = AS 5216 Compliant
Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.

M8 - M12 COUPLER NUT

M8 - M12 COUPLER NUT ZINC CLEAR Part No.	Description	Socket Size (mm)	Thread (metric)	qty.
CPLRM8-M10	M8 to M10 Coupler Nut	16	M8 to M10	100
CPLRM8-M12	M8 to M12 Coupler Nut	16	M8 to M12	100

Excessive torque during installation may damage the anchor. Training, expertise and good judgment is required. Always adhere to anchor installation impact tool torque guidelines.

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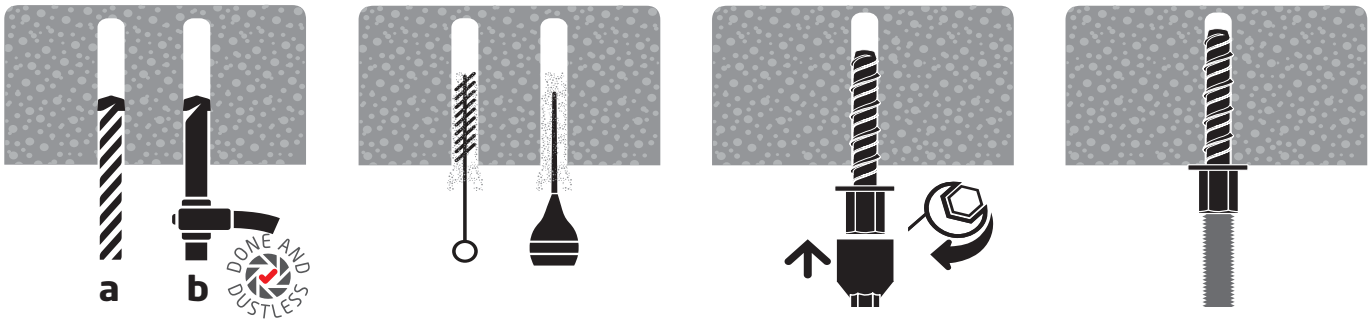
Installation Hanger



1a. With the correct diameter drill bit, drill a hole to the correct depth (add at least one anchor diameter to the depth to prevent the fastener from bottoming out). **OR**

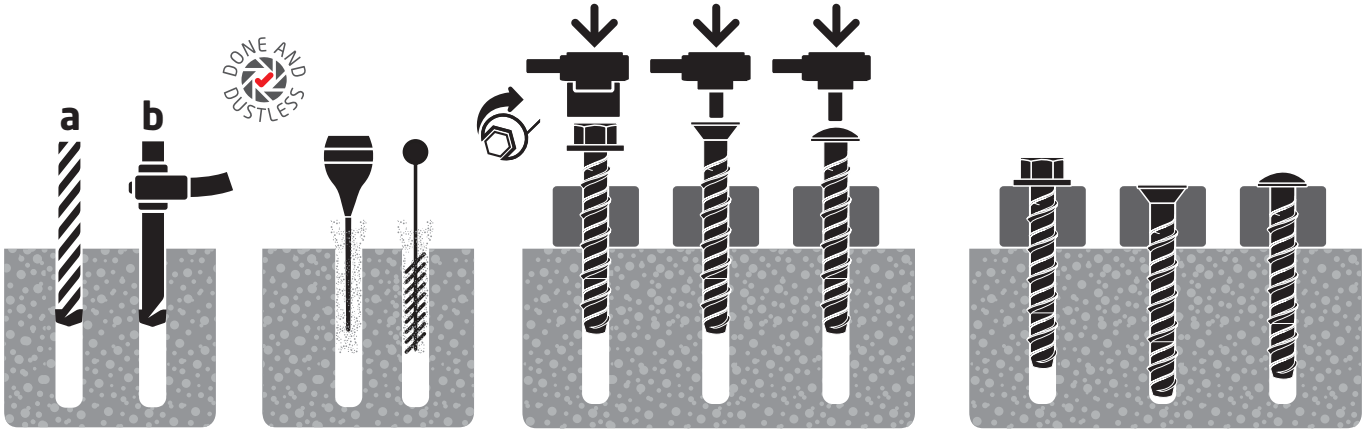
1b. Alternatively, use a Heller Set-Safe DE Hollow Drill Bit which vacuums out the dust (proceed to step 3).

2. Clean dust and other material from the hole.

3. Attach the Anchor to the correct size socket driver and install anchor perpendicular to the base material substrate. Be sure not to over torque the anchor. Install with either a socket or cordless impact driver.

4. The head of the anchor should be set flush with the base material. Install the threaded rod. The thread should be fully engaged in the anchor.

Installation Screw-bolt



1a With the correct diameter drill bit, drill a hole to a depth of at least one anchor diameter deeper than required embedment. **OR**

1b Alternatively, use a Heller Set-Safe DE Hollow Drill Bit which vacuums out the dust.

2 Clean dust and other material from the hole.

3 Install with either a socket or cordless impact driver. Apply pressure against the fixing and rotate to engage the first thread.

4 Continue to tighten the anchor until flanged head is firmly seated against fixture. Be sure not to over torque the anchor.

Installation complete!

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TOGE TSM Performance in 32 MPa Concrete

Single anchor remote from edge

Size	Drill Hole Diameter (mm)	Anchor Embedment (mm)	Effective Anchor Depth h_{ef} (mm)	Fixture Hole Diameter (mm)	Installation Torque (Nm)	Min. Concrete Thickness (mm)	TENSILE DESIGN RESISTANCE				SHEAR DESIGN RESISTANCE				TENSILE DESIGN RESISTANCE		
							Non-cracked Concrete (kN)	Cracked Concrete (kN)	SEISMIC C1* (kN)	SEISMIC C2* (kN)	Non-cracked Concrete (kN)	Cracked Concrete (kN)	SEISMIC C1* (kN)	SEISMIC C2* (kN)	Impact Screw Driver Max. Torque (Nm)	Minimum Edge Distance (mm)	Minimum Spacing Distance (mm)
TSM 6	6	40	31	8	10	100	3.4	1.7	1.3	-	5.6	5.0	3.8	-	160	40	40
		55	44				7.6	3.4	2.7	-	5.6	5.6	4.5	-			
TSM 8	8	45	35	12	20	100	6.3	4.2	-	-	8.6	6.0	-	-	300	40	40
		55	43				10.1	7.6	-	-	10.8	8.2	-	-		50	50
		65	52			120	13.4	10.1	8.0	1.6	13.6	10.9	6.8	7.9			
TSM 10	10	55	43	14	40	100	10.1	7.6	6.0	-	11.7	8.2	7.0	-	400	50	50
		75	60			130	16.8	13.5	-	-	27.2	27.0	-	-			
		85	68				21.0	16.3	13.8	3.6		27.2	12.2	14.8			
TSM 12	12	65	50	16	60	120	13.4	10.1	-	-	14.7	10.3	-	-	650	50	50
		85	67			130	22.8	15.9	-	-	33.6	31.9	-	-			
		100	80			150	29.7	20.8	17.7	4.7		33.6	16.8	25.3		70	70
TSM 14	14	75	58	18	80	130	18.3	12.8	-	-	18.3	12.8	-	-	650	50	50
		100	79			150	29.1	20.4	-	-	44.8	40.8	-	-		70	70
		115	92			170	36.6	25.6	21.8	7.0		44.8	17.9	32.6			

Note: The TSM high performance anchor may be used in applications subject to static or quasi-static loading in reinforced or unreinforced normal weight concrete of strength classes C20/25 - C50/60. The TSM high performance anchor may be used in cracked or non-cracked concrete. For specific design information including minimum edge and anchor spacing information please refer to ETA-15/0514. C1 and C2 Seismic design loads have been derived using AS 5216:2021 / EN 1992-4:2018 & TR049 (a_{gap} = 1.0).
Performance data in the above table has been calculated using the relevant published ETA and based on single anchor installation at characteristic spacing and edge distance parameters.
* C1 valid for carbon steel and stainless steel TSM. *C2 valid for carbon steel TSM ONLY.

TOGE TSM SS LT Performance in 20 MPa Concrete

Single anchor remote from edge

Size	Drill Hole Diameter (mm)	Anchor Embedment (mm)	Effective Anchor Depth h_{ef} (mm)	Fixture Hole Diameter (mm)	Installation Torque (Nm)	Min. Concrete Thickness (mm)	TENSILE DESIGN RESISTANCE			SHEAR DESIGN RESISTANCE				Impact Screw Driver Max. Torque (Nm)	Minimum Edge Distance (mm)	Minimum Spacing Distance (mm)
							Non-cracked Concrete (kN)	Cracked Concrete (kN)	SEISMIC C1 (kN)	Non-cracked Concrete (kN)	Cracked Concrete (kN)	SEISMIC C1 (kN)	CSK (Only) SEISMIC C1 (kN)			
TSM SS LT 6	6	35	25	8	10	80	2.3	1.7	-	5.2	3.6	-	-	160	35	35
		45	34			80	2.7	1.0	1.0	5.6	5.6	2.8	2.0			
		55	42			100	5.7	2.0	2.0	5.6	5.6	3.2	-			
TSM SS LT 8	8	45	32	12	20	80	6.0	2.0	2.0	10.8	10.8	6.4	3.6	300	35	35
		55	41			100	8.0	3.7	-	10.8	10.8	-	-			
		65	49			120	11.3	5.3	5.7	13.6	13.6	8.0	5.6			
TSM SS LT 10	10	55	40	14	40	100	7.3	4.0	4.0	18.0	18.0	11.2	11.2	450	40	40
		75	57			130	12.7	8.7	-	27.2	27.2	-	-			
		85	65			130	16.7	11.3	10.2	27.2	27.2	12.8	8.0			

Note: The TSM SS LT high performance anchor may be used in applications subject to static or quasi-static loading in reinforced or unreinforced normal weight concrete of strength classes C20/25 - C50/60.
The TSM SS LT high performance anchor may be used in cracked or non-cracked concrete.
For specific design information including minimum edge and anchor spacing information please refer to ETA-21/0425.
C1 Seismic design loads have been derived using AS 5216:2021 / EN 1992-4:2018 & TR049 (agap = 1.0).
Performance data in the above table has been calculated using the relevant published ETA and based on single anchor installation at characteristic spacing and edge distance parameters.

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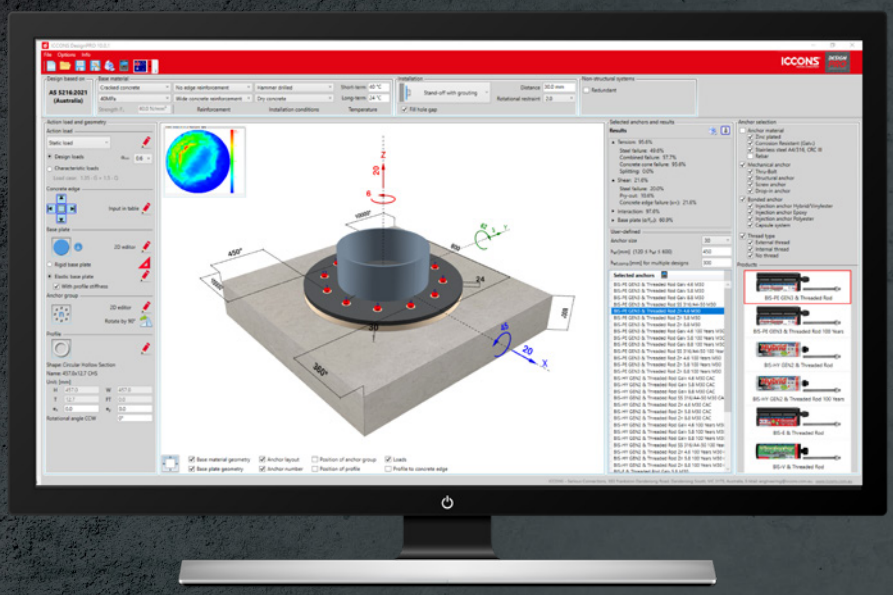
DESIGN PRO
ADVANCED ANCHOR DESIGN SOFTWARE



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ICCONS® PTY LTD

VICTORIA - Head Office
383 Frankston Dandenong Rd,
Dandenong South,
Victoria, 3175
P: **03 9706 4344**

NSW Branch
Unit A, 17 Seddon Street,
Bankstown,
New South Wales, 2200
P: **02 9791 6869**

QLD Branch
42-44 Nealdon Dr,
Meadowbrook,
Queensland, 4131
P: **07 3200 6455**

FNQ Branch
41 Corporate Crescent,
Garbutt,
Queensland, 4814
P: **07 2111 3453**

S.A Branch
29-31 Weaver Street,
Edwardstown,
South Australia, 5039
P: **08 8234 5535**

W.A. Branch
90 Christable Way,
Landsdale,
Western Australia, 6065
P: **08 6305 0008**

N.T Branch
Unit 1, 14 Menmuir Street,
Winnellie,
Northern Territory, 0820
P: **08 8947 2758**

NEW ZEALAND

SESTO FASTENERS
5E Piermark Drive,
Rosedale, Auckland,
New Zealand, 0632
P: **+64 9415 8564**
E: **sestofasteners@gmail.com**

THAILAND

ICCONS® (Thailand) Co. Ltd.
55 Phetkasem 62/3,
Bangkhae, Bangkok
Thailand, 0160
P: **+ 66 2 801 0764**
F: **+ 66 2 801 0764**
M: **+ 66 8 1 710 8745**
E: **icconsthailand@iccons.com.au**

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